IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Marugan et al.	
Application No.: 10/605,671	
Filed: 10/16/2003	Group Art Unit: 1796
Title: Light Colored Polycarbonate Compositions and Methods	Examiner: Marc S. Zimmer
Attorney Docket No.: GEPL.P-077	

BRIEF FOR APPELLANT

This brief is filed in support of Applicants' Appeal from the final office action mailed January 18, 2008. Consideration of the application and reversal of the rejections are respectfully urged.

Real Party in Interest

The real party in interest is SABIC Innovative Plastics, B.V.

Related Appeals and Interferences

To Applicants' knowledge there are no related appeals or interferences.

Status of Claims

Claims 1-71 have been canceled and claims 72-132 are pending. Claims 72-80, 83-88, 91-107, 110-124, and 127-132 are rejected under 35 USC §103(a) and are herein appealed. Claims 81, 82, 89, 90, 108, 109, 125, and 126 are objected to as being dependent upon rejected base claims, but would otherwise be allowable if rewritten in independent format.

Claims 72-132 were added to reinstate the subject matter of claims 1-61 as they were prior to Applicants' January 12, 2006 amendment. For reference new claim 72 is identical to

original claim 1 and the remaining new claims 73-132 sequentially correspond to claims 2-61 as they were prior to the January 12, 2006 amendment. The January 12, 2006 amendment restored claims that had been previously rejected in the office action of October 18, 2005 and canceled in view of an indication of allowable subject matter when the Examiner subsequently withdrew the indication of allowability.

Status of Amendments

No amendment after final has been filed.

Summary of Claimed Subject Matter

The inventors have found that the addition of polycarbonate-siloxane copolymer to polycarbonate / titanium dioxide (i.e. a light colored pigment) compositions results in a reduction in the flame retardant properties of the three-component composition. *See* page 3 lines 4 to 14 of the present application. The present invention provides light colored compositions including these components that avoid this reduction in product quality. *Id.*

Independent claim 72 (and dependent claims 73-101) relate to a composition having: (a) a bulk resin component having a polycarbonate resin (*see* page 3 lines 15-17); (b) a polycarbonate-siloxane copolymer in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition (*see* page 9 lines 17-20 of the specification); and (c) a colorant composition comprising titanium dioxide having an organic coating, wherein the amount of titanium dioxide is from 1 to 2.5 % by weight of the total composition (*see* page 20 line 5-7). *See also* page 3 lines 15 to page 10 lines 27.

Independent claim 102 (and dependent claims 103-118) relate to molded or extruded articles that have flame retardant properties. *See* page 12 lines 15-16. These articles are formed from a molding composition having: (a) a bulk resin component comprising a polycarbonate resin; (b) a polycarbonate-siloxane copolymer; and (c) a colorant composition comprising titanium dioxide, wherein the titanium dioxide has an organic coating. The articles have a thickness greater than a "first thickness" and the amount of polycarbonate-siloxane copolymer is selected such that the molding composition achieves a V0 UL fire rating at the first thickness.

See page 12 line 15 to page 13 line 10.

Independent claim 119 (and dependent claims 120-131) relate to a method for forming a light colored flame retardant polycarbonate article. *See* page 13 lines 1-10. The method includes the steps of forming a blend and forming an article from the blend. *Id.* The blend is formed by combining: (a) a bulk resin component comprising a polycarbonate resin; (b) a polycarbonate-siloxane copolymer in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition; and (c) a colorant composition comprising titanium dioxide having an organic coating comprising an organic polysiloxane, trimethylolpropanol, or mixtures thereof, wherein the amount of titanium dioxide is from 1 to 2.0 % by weight of the total composition. *Id.*

Independent claim 132 relates to a method for enhancing the flame retardance of a light colored composition. *See* page 2 lines 14-22 of the specification. The composition has a bulk resin component comprising polycarbonate; a polycarbonate-siloxane copolymer; and a colorant composition comprising titanium dioxide. *Id.* The method includes the steps of: (a) including the polycarbonate-siloxane copolymer in the composition in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition; and (b) selecting as the titanium dioxide a titanium dioxide having an organic coating comprising a polyorganosiloxane, trimethylolpropanol, or mixtures thereof. *Id.*

Grounds of Rejection to be Reviewed on Appeal

(1) Claims 72-78, 80, 83-88, 91-97, 100, 102-107, 110-112, 114-116, 118-124, 127-130, and 132 are rejected under 103 (a) as obvious over Okumura et al. (US 5,451,632).

(2) Claims 79, 101, and 131 are rejected under 103 (a) as obvious over Okumura et al. (US 5,451,632) in view of Lo et al. (US 5,804,654) and/or Falcone (US Patent Application Publication no. 2002/0019466).

(3) Claims 94-96, 98-99, 113-115, and 117-118 are rejected under 103 (a) as obvious over Okumura et al. (US 5,451,632) in view of new references Brand (US 4,357,170) and/or Nelson (US 3,542,575).

Argument

(1) Claims 72-78, 80, 83-88, 91-97, 100, 102-107, 110-112, 114-116, 118-124, 127-130, and 132 are rejected under 103 (a) as obvious over Okumura et al. (US 5,451,632).

Okumura fails to render the independent claims (i.e. 72, 102, 119, and 132) and dependent claims based thereon obvious:

The Examiner maintains that the independent claims and dependent claims based thereon are obvious in view of Okumura. Applicants submit this conclusion is incorrect and request the Board to reverse the Examiner's rejections.

The inventors have found that the addition of polycarbonate-siloxane copolymer (e.g. PC-PDMS) to titanium dioxide (TiO_2) / polycarbonate (PC) compositions unexpectedly reduces the flame retardant properties of the three-component composition. *See* page 3 lines 4 to 14 of the present application. This finding is directly contrary to the result that would be expected from the combination of components. Namely, it is usually the case in a polymer composition that its properties resemble a combination of the properties of its components. For example, if two different polymers are combined in a blended composition where one polymer has a higher flame retardance than the other, it would be expected that the flame retardance properties of the blend would lie somewhere in between that of the individual polymers. The present application is based upon the special case where this type of expected result does not hold true and the inventors have provided novel and unexpected solutions to this unexpected problem.

The present application claims the unexpected solution to the above-observed and unexpected problem. Claims 72, 102, 119, and 132 are specific for three-component compositions comprising a specific combination of its three components ((1) an organic coated TiO_2, (2) polycarbonate, and (3) polycarbonate-polysiloxane copolymer). The combination of these components, in the amount specified in the claims, increases the flame performance of

molded articles made from the three-component composition. Okumura fails to recognize the problems associated with the combination of the specific three-components and fails to provide a teaching, suggestion, or motivation to combine the components, let alone in the amounts or methods as claimed, in blend.

Applicants note that the Examiner had originally maintained that Okumura was an anticipating reference against the claims until the Applicant's filed their August 5, 2005 response that suggested otherwise. *See* the December 27, 2004 and the May 9, 2005 office actions. *See also* the August 5, 2005 response. In response to Applicants' August 5th arguments, the Examiner stated that he,

> has reconsidered the patentability of the claims in view of Applicants' arguments and the teachings of the reference and concluded that, in fact, the most reasonable rejection of these claims is one that is made under 35 U.S.C. 103. **Okumura, it is acknowledged, does not expressly disclose blends of polycarbonate, polycarbonate-polysiloxane copolymer, and titanium dioxide, and in the amounts specified by the claims.** *See* page 2 of the October 18, 2005 office action. *Reiterated* at page 2 of the March 1, 2006 office action.

The Examiner is quite correct to state that Okumura does not expressly disclose blends of polycarbonate, polycarbonate-polysiloxane copolymer, and titanium dioxide. Further, the Examiner is correct to state that Okumura fails to expressly disclose these compounds in the amounts specified in the claims. Yet the Examiner maintains his rejections under 103 (a).

The Examiner has rejected the claims indicating that the present limitations are obvious because Okumura discloses three-component compositions and therefore must disclose the compositions and articles of the present invention. The Examiner states that the basis for rejecting the present claims under 103,

> relies on (i) Okumura's **cursory** mention in column 15, lines 40-44 that mixtures of polysiloxane-polycarbonate and the various embodiments of (B), which include polycarbonate homopolymer and titanium dioxide pigment, may also be formed, and (ii) the reasonable assumption that, in those cases where all three of polycarbonate, polycarbonate-polysiloxane copolymer, and titanium dioxide are combined, it is desirable to use the same amounts that are prescribed by the claims. *See* page 2 of the October 18, 2005. *Reiterated* at page 2 of the March 1, 2006 office action.

The Examiner's reasoning is flawed and his use of the term **cursory** when citing column 15 lines 40-44 illustrates this point. Okumura at column 15 lines 40-44 actually reads,

> The molded articles of PC-PDMS copolymer is also obtained by preparing a resin composition by using PC-PDMS as the component (A) and various kinds of resin, inorganic filler **or** pigment as the component (B) and then molding the resin composition.

The Examiner suggests that the term **or** as it is used in column 15 line 43 means that molded articles can have a PC-PDMS component (A) with any combination of two materials selected from material (B) (i.e. a resin, an inorganic filler, or a pigment) to provide the three-component compositions of the present invention.

The Examiner's reading of the cited section is entirely inconsistent with the balance of Okumura. Nowhere, including any example in the Example section, can one find any mention of a three-component mixture comprising a PC-PDMS copolymer, a pigment, and a resin. Further and even more specifically nowhere can one find mention of a three-component mixture having a polycarbonate-polysiloxane copolymer, titanium dioxide having an organic coating, and polycarbonate.

The only mention of using a pigment in the examples of Okumura comes in examples 1D to 22D found in Table 1D starting at column 30. These examples illustrate only two-component compositions of PC-PDMS and a pigment **or** PC and a pigment. These two-component mixtures simply do not disclose nor do they suggest the specific three-component mixture. Further, the examples and the balance of Okumura's disclosure fails to recognize the herein found problems associated with the specific three-component mixture (i.e. the reduction in flame retardant properties of such) and the corresponding solutions provided by the present invention.

Applicants therefore submit that the Examiner's rejections of the claims based on Okumura are incorrect and respectfully request the Board to overturn these rejections.

The subject matter of the present invention and claims is unexpected:

Assuming arguendo that the Examiner were correct, which he is not, to maintain that Okumura provides a suggestion, teaching, or motivation to combine the specific three

components of the present claims in the amounts specified in the claims, the present inventors have alleged and demonstrated that the results of the claimed combination of limitations are unexpected.

Applicants remind the Board of their holding in *Ex parte Mead Johnson & Co.*, 227 USPQ 78, BPAI 1985, regarding the standard for reviewing unexpected results in the determination obviousness, namely, the absence of a property which a claimed invention would have been expected to possess based on the teachings of the prior art is evidence of unobviousness. *See* MPEP section 716.02(a). It follows that because of the unexpected finding of the reduction of flame performance of a specific three-component composition that a solution to the problem of using specific amounts of the specific three-components would also be evidence of unobviousness. Furthermore, Applicants remind the board that the Federal Circuit has held that in determining obviousness in light of alleged unexpected results, that the alleged unexpected results must be compared with the closest prior art. *See* MPEP 716.02(e). *See also In re Geiger*, 2 USPQ2d 1276, 1279 (Fed. Cir. 1987).

The unexpected phenomena and unexpected solution as claimed is clearly demonstrated in the example section of the present application and in the primary reference, Okumura (e.g. the Examiner's characterization of the "closest prior art"). Okumura's disclosure teaches the general rule that PC-PDMS has superior flame performance as compared to PC and that the addition of PC-PDMS to PC increases the flame retardant properties of the binary composition. *See* Okumura at column 1 lines 5-16 and the examples at column 25 line 47 to column 27 line 42. Next, Okumura teaches that the addition of TiO_2 (e.g. component F1 in table 1D) to either of the PC or the PC-PDMS does not affect the flame performance of those binary combinations. *Id.* at column 30 line 35 to column 31 line 54. It would thus be expected that a combination of all three components would not exhibit a degradation of flame performance, but would rather exhibit a blend of the flame properties of both the PC-PDMS and PC. However, as is illustrated in the present application, this is not the case.

Example 1 of the present specification supports the observation of the general rule upon which Okumura is based. Namely, Example 1 also demonstrates that binary compositions (PC and PC-PDMS) had over a 90 percent chance of meeting the V0 flame test standard. *See*

Example 1 control formulations for "no pigment". However Example 1 also demonstrates, in Table 3, that in compositions 1-11 which contain all three components (e.g. TiO_2, polycarbonate, and PC-PDMS copolymer (2.4% siloxane)), none of the compositions had a reasonable expectation of meeting the V0 flame test standard. Thus, the herein observed reduction in flame performance of the three-component mixture are contrary to the observations reported in Okumura and are unexpected. *See* paragraph 21 of the present application.

This finding is important because flame retardance is an important property in polymer compositions and articles made therefrom. Therefore a solution to the problem is desired. A solution to this unexpected problem could potentially be the addition of some known flame performance modifying agent to the three-component composition that would be expected to enhance the flame performance of the composition. This potential approach would likely be considered an expected solution to the unexpected problem, however, the composition would now include at least four components and the properties of the composition would also include the properties, both desired and undesired, of the added component. This type of solution to the unexpected problem is not the present invention and this reasoning would not support a holding of obviousness of the present claims.

In the present invention, there is no addition of a supplemental compound, and all of its attendant properties, to the three-component composition to solve the problem. Rather, the present invention carves out a range of values for its specific components, that when present in these ranges does not produce the unexpected problem. In other words, the present claims claim an unexpected "hole" in the ranges of compositions that otherwise can create an unexpected problem.

The Examiner places undue weight on requiring Applicants to demonstrate the criticality of the individual limitations of the claims in isolation and to amend the claims to include reference to the enhanced unexpected properties. *See* page 5 line 5 to page 8 line 11 of the final office action mailed on January 18, 2008. Applicants again question the purpose of the Examiner's requests. As a first matter, the claimed compositions and methods inherently contain the formed composition's properties, both expected and unexpected. Furthermore, claim 119 is specific for providing an article that achieves a V0 rating at its first thickness and claim 132 is

specific for "[a] method for enhancing the flame retardance". These claims specifically recite the property being unexpectedly "enhanced".

Next, it is not the case that any one individual limitation is by itself critical to the resulting properties of the blend in the absence of all other limitations. Instead, what the present claims require and the disclosure provides are specific combinations of three components that when present in the claimed amounts have a resulting enhanced effect on the flame performance at a certain thickness of an article made from the composition. In other words the limitations relating to siloxane content, the organic coating of the TiO_2, the minimum wall thickness, and the polycarbonate, among others, cannot and should not be considered in isolation without the balance of limitations of the specifically considered claim. *See* paragraph 53 on page 12 of the present specification.

The present application is replete with disclosure and examples showing the importance of the relatedness of the limitations of the claims to enhancing the flame performance of the three-component composition. The desired amount of polycarbonate-siloxane copolymer depends on the minimum thickness of the article, the amount of polycarbonate, the amount of the titanium dioxide, and the type of coating applied to the titanium dioxide. *Id.* For example, Tables 4 and 5 of the present application show the results when the amount of copolymer is increased, using an organic coated TiO_2. As shown in examples 13 and 20, adequate performance can be achieved using either lower amounts of organic coated TiO_2 or higher amounts of siloxane (4%). Example 3 uses copolymers containing 18% copolymer (3.6% siloxane) or 17.8% copolymer (3.56% siloxane) and two types of organic coated TiO_2. These samples are within the scope of the present invention and consistently achieved over or near 90% likelihood of passing the V0 test. Exemplary amounts of polycarbonate-siloxane copolymer relative to the wall thickness and titanium dioxide are also given in paragraph [0053] of the specification.

Furthermore, the present application indicates that the organic coating of the TiO_2 is an important limitation to the present claims. *See* paragraph 42 of the specification. It is believed the fire retardant properties of the three-component mixture correlates with the distribution of the TiO_2 within the mixture, *inter alia*. *Id.* TiO_2 pigments that do not have such a coating are

believed to aggregate within the mixture. An organic coating, for example an organo-silicone coating, is required by the claims and is applied to the TiO_2 pigments to reduce their surface reactivity such that they are more easily dispersed within the mixture. *Id.*

Rejected dependant claims 73 and 103 and therefore dependent claims 74-101 and* claims 104-118 *state that "the bulk resin component make up at least 50% of the composition" and are likewise not obvious:

Claims 73 and 103 and therefore dependent claims 74-101 and 104-118 require that the bulk resin makes up at least 50% of the total composition. This means that necessarily the amount of polycarbonate-siloxane copolymer is less than 50%. The PC-siloxane copolymer, used as a starting material for mixing with PC in the example section of Okumura, with the highest amount of siloxane is in example 2A (i.e. 3.8% PDMS). If this PC-siloxane copolymer were used in a composition containing 50% bulk resin and 50% copolymer, the amount of siloxane would be 1.9% which is outside the scope of the present claims. This is another limitation that can be found nowhere in the cited reference.

Independent claim 102 and dependent claims based thereon are not obvious:

Independent claim 102 is specific for an article made from the three component blend that has a wall thickness greater than a first minimum thickness. The amount of polycarbonate-siloxane copolymer is selected such that the molding composition achieves a V0 UL fire rating at the first thickness (e.g. 1.6 mm in claim 104).

As indicated above, the limitation relating to the composition achieving a V0 UL fire rating at the article's first thickness is important. *See* paragraph [0053] of the specification. In assessing flame-retardance of an article it is particularly relevant to consider the point of minimum wall thickness, since this is the region of the article that is most flammable. *Id.* In the present claims, the minimum wall thickness of the article is referred to as the "first thickness" and the amount of polycarbonate-siloxane copolymer in the composition is selected such that a V0 UL fire rating of the composition is achieved at this minimum thickness. *Id.*

There is no teaching in Okumura of the claimed three-component mixture nor any

teaching directed to the amounts of each of the three-components that is required to achieve a V0 UL fire rating of an article at its minimum thickness, let alone a minimum thickness of 1.6 mm.

(2) Claims 79, 101, and 131 are rejected under 103 (a) as obvious over Okumura et al. (US 5,451,632) in view of Lo et al. (US 5,804,654) and/or Falcone (US Patent Application Publication no. 2002/0019466).

Lo and Falcone are cited for a teaching related to the anti-drip agent. Applicants resubmit all arguments outlined above with respect to the shortcomings of Okumura and incorporate them into this section by reference thereto.

The Lo and Falcone references cited by the Examiner fail to plug the holes of Okumura:

The secondary references cited by the Examiner (i.e. Lo and Falcone) were cited with respect to disclosing the previously-deemed-allowable anti-drip limitations. The secondary references fail to provide the above-mentioned deficiencies of Okumura. Therefore, the obviousness rejections to these claims should be overturned.

(3) Claims 94-96, 98-99, 113-115, and 117-118 are now rejected under 103 (a) as obvious over Okumura et al. (US 5,451,632) in view of new references Brand (US 4,357,170) and/or Nelson (US 3,542,575).

Brand and Nelson are only cited for a teaching related to the dispersing agent. Applicants resubmit all arguments outlined above with respect to the shortcomings of Okumura and incorporate them into this section by reference thereto.

The Brand and Nelson references cited by the Examiner fail to plug the holes of Okumura:

The secondary references cited by the Examiner (i.e. Brand and Nelson) were cited with respect to disclosing only the previously-deemed-allowable dispersing agent limitations. The secondary references fail to provide the above-mentioned deficiencies of Okumura. Therefore, the obviousness rejections to these claims should be withdrawn.

Conclusion

For all of the foregoing reasons, Applicants submit that the 103 (a) rejections should be reversed and that all claims (i.e. 72-132) of this application are in form for allowance. Such action is earnestly solicited.

Respectfully submitted,

Marina T. Larson, Ph.D
Reg. No. 32038

Ryan E. Anderson
Reg. No. 51405

Attorney/Agent for Applicant(s)
(970) 262 1800

Claims Appendix

72. A composition comprising:

(a) a bulk resin component comprising a polycarbonate resin;

(b) a polycarbonate-siloxane copolymer in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition; and

(c) a colorant composition comprising titanium dioxide having an organic coating, wherein the amount of titanium dioxide is from 1 to 2.5 % by weight of the total composition.

73. The composition of claim 72, wherein the bulk resin component makes up at least 50% of the composition.

74. The composition of claim 73, wherein the amount of titanium dioxide is from 1 to 1.5% by weight of the total composition.

75. The composition of claim 74, further comprising a rubbery impact modifier.

76. The composition of claim 75, wherein the rubbery impact modifier is selected from the group consisting of acrylic rubbers, ASA rubbers, diene rubbers, organosiloxane rubbers, EPDM rubbers, styrene-butadiene-styrene (SBS) or styrene-ethylene-butadiene-styrene (SEBS) rubbers, ABS rubbers, MBS rubbers and glycidyl ester impact modifiers, and mixtures thereof.

77. The composition of claim 76, wherein the rubbery impact modifier is present in an amount of from 1 to 30% by weight.

78. The composition of claim 77, further comprising an antidrip agent.

79. The composition of claim 78, wherein the antidrip agent is styrene-acrylonitrile copolymer encapsulated polytetrafluoroethylene.

80. The composition of claim 78, further comprising an effective flame-retarding amount of flame retardant.

83. The composition of claim 80, wherein the flame retardant is a sulfonate.

84. The composition of claim 83, wherein the sulfonate is a perfluoroalkane sulfonate.

85. The composition of claim 84, wherein the perfluoroalkane sulfonate is potassium perfluorobutane sulfonate.

86. The composition of claim 74, wherein the organic coating comprises an organosiloxane.

87. The composition of claim 86, wherein the amount of titanium dioxide is from 1 to 1.5% by weight of the total composition.

88. The composition of claim 87, further comprising an effective flame-retarding amount of flame retardant.

91. The composition of claim 88, wherein the flame retardant is a sulfonate.

92. The composition of claim 91, wherein the sulfonate if a perfluoroalkane sulfonate.

93. The composition of claim 92, wherein the perfluoroalkane sulfonate is potassium perfluorobutane sulfonate.

94. The composition of claim 86, wherein the organic coating comprises a trimethylolpropanol.

95. The composition of claim 94, wherein the bulk component further comprises a rubbery impact modifier.

96. The composition of claim 95, wherein the rubbery impact modifier is selected from the group consisting of acrylic rubbers, ASA rubbers, diene rubbers, organosiloxane rubbers, EPDM rubbers, styrene-butadiene-styrene (SBS) or styrene-ethylene-butadiene-styrene (SEBS) rubbers, ABS rubbers, MBS rubbers and glycidyl ester impact modifiers, and mixtures thereof.

97. The composition of claim 94, further comprising an effective flame-retarding amount of flame retardant.

98. The composition of claim 73, wherein the organic coating comprises trimethylolpropanol.

99. The composition of claim 98, wherein the amount of titanium dioxide is from 1 to 1.5% by weight of the total composition.

100. The composition of claim 73, wherein the bulk component further comprises an engineering thermoplastic.

101. The composition of claim 100, wherein the engineering thermoplastic is a styrene acrylonitrile copolymer or polymethyl(methacrylate).

102. An article, having a wall thickness greater than a first thickness, said article being formed from a molding composition comprising:

(a) a bulk resin component comprising a polycarbonate resin;

(b) a polycarbonate-siloxane copolymer; and

(c) a colorant composition comprising titanium dioxide, wherein the titanium

dioxide has an organic coating, and the amount of polycarbonate-siloxane copolymer is selected such that molding composition achieves a V0 UL fire rating at the first thickness.

103. The article of claim 102, wherein the bulk resin component makes up at least 50% of the molding composition.

104. The article of claim 103, wherein the first thickness is 1.6 mm, and the polycarbonate-siloxane copolymer is present in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition.

105. The article of claim 103, wherein the organic coating comprises an organosiloxane.

106. The article of claim 105, wherein the amount of titanium dioxide is from 1 to 1.5% by weight of the total composition.

107. The article of claim 106, further comprising an effective flame-retarding amount of flame retardant.

110. The article of claim 107, wherein the flame retardant is a sulfonate.

111. The article of claim 110, wherein the sulfonate if a perfluoroalkane sulfonate.

112. The article of claim 111, wherein the perfluoroalkane sulfonate is potassium perfluorobutane sulfonate.

113. The article of claim 105, wherein the organic coating comprises trimethylolpropanol.

114. The article of claim 113, wherein the bulk component further comprises a rubbery impact modifier.

115. The article of claim 114, wherein the rubbery impact modifier is selected from the group consisting of acrylic rubbers, ASA rubbers, diene rubbers, organosiloxane rubbers, EPDM rubbers, styrene-butadiene-styrene (SBS) or styrene-ethylene-butadiene-styrene (SEBS) rubbers, ABS rubbers, MBS rubbers and glycidyl ester impact modifiers, and mixtures thereof.

116. The article of claim 113, further comprising an effective flame-retarding amount of flame retardant.

117. The article of claim 103, wherein the organic coating comprises trimethylolpropanol.

118. The article of claim 117, wherein the first thickness is 1.6 mm, and the polycarbonate-siloxane copolymer is present in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition.

119. A method for forming a light colored, flame retardant polycarbonate article comprising the steps of

forming a blend by combining:

(a) a bulk resin component comprising a polycarbonate resin;

(b) a polycarbonate-siloxane copolymer in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition; and

(c) a colorant composition comprising titanium dioxide having an organic coating comprising an organic polysiloxane, trimethylolpropanol, or mixtures thereof, wherein the amount of titanium dioxide is from 1 to 2.0 % by weight of the total composition; and

forming an article from the blend.

120. The method of claim 119, wherein the bulk resin component makes up at least 50% of the blend.

121. The method of claim 120, wherein the amount of titanium dioxide is from 1 to 1.5% by weight of the total composition.

122. The method of claim 120, wherein the bulk component further comprises a rubbery impact modifier selected from the group consisting of acrylic rubbers, ASA rubbers, diene rubbers, organosiloxane rubbers, EPDM rubbers, styrene-butadiene-styrene (SBS) or styrene-ethylene-butadiene-styrene (SEBS) rubbers, ABS rubbers, MBS rubbers and glycidyl ester impact modifiers, and mixtures thereof.

123. The method of claim 122, wherein the rubbery impact modifier is present in an amount of from 1 to 30% by weight.

124. The method of claim 120, further comprising an effective flame-retarding amount of flame retardant.

127. The method of claim 120, wherein the flame retardant is a sulfonate.

128. The method of claim 127, wherein the sulfonate if a perfluoroalkane sulfonate.

129. The method of claim 128, wherein the perfluoroalkane sulfonate is potassium perfluorobutane sulfonate.

130. The method of claim 120, wherein the bulk component further comprises an engineering thermoplastic.

131. The method of claim 130, wherein the engineering thermoplastic is a styrene acrylonitrile copolymer or polymethyl(methacrylate).

132. A method for enhancing the flame retardance of a light colored composition comprising a

bulk resin component comprising polycarbonate; a polycarbonate-siloxane copolymer; and a colorant composition comprising titanium dioxide, said method comprising the steps of

(a) including the polycarbonate-siloxane copolymer in the composition in an amount sufficient to provide an amount of siloxane of at least 3% by weight of the total composition; and

(b) selecting as the titanium dioxide a titanium dioxide having an organic coating comprising a polyorganosiloxane, trimethylolpropanol, or mixtures thereof.

Evidence Appendix

None

Related Proceedings Appendix

None